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## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

10/526756

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P13056/DLL</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/SE 2003/001372</b>	International filing date (day/month/year) <b>04.09.2003</b>	Priority date (day/month/year) <b>04.09.2002</b>
International Patent Classification (IPC) or national classification and IPC <b>A61G 10/02 // F24F 3/16</b>		
Applicant <b>Johnson Medical Development PTE Ltd et al</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:

a.  (*sent to the applicant and to the International Bureau*) a total of 4 sheets, as follows:

sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b.  (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand <b>30.03.2004</b>	Date of completion of this report <b>03.12.2004</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer <b>Ingrid Falk/EK</b> Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/001372

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on a translation from the original language into the following language english, which is the language of a translation furnished for the purposes of:

international search (under Rules 12.3 and 23.1(b))  
 publication of the international application (under Rule 12.4)  
 international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

the international application as originally filed/furnished

the description:

pages 1 - 6 as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* 7 - 10 received by this Authority on 02.08.2004

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

pages 1 - 7 as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to the sequence listing (specify): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to the sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## Box No. IV Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:
  - restricted the claims.
  - paid additional fees.
  - paid additional fees under protest.
  - neither restricted nor paid additional fees.
2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
  - complied with.
  - not complied with for the following reasons:
    1. Claims 1-15 and 23-24 are related to a system, an air supply unit and a method for ventilating a room by means of an air supply unit comprising a guiding slot diffuser and a main diffuser. The slot diffuser is lying in a plane which is parallel to a vertical plane parallel with a left or right side of the bed in which the patient is lying.
    2. Claims 16-22 are related to a portable air conditioning unit comprising a guiding slot diffuser and a main diffuser. The slot diffuser unit have two slots with an acute angle between said slots' depth axes.

The corresponding technical feature between claims 1-15, 23-24, and claims 16-22 is the use of a ventilating system comprising a guiding slot diffuser and a main diffuser.

Since this corresponding technical feature is known from the document WO 86/06460, the technical relationship between the two inventions defined in the claims lacks a common special technical feature, which defines a contribution over prior art.

Consequently, it appears that the claims do not satisfy the requirement of unity of invention within the meaning of PCT Rule 68.1.

4. Consequently, this report has been established in respect of the following parts of the international application:

- all parts.
- the parts relating to claims Nos. \_\_\_\_\_

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/SE 2003/001372

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-24</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-24</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-24</u>	YES
	Claims	_____	NO

## 2. Citations and explanations (Rule 70.7)

Document cited in the International Search Report:  
D1: WO 8606460 A1

The cited document D1 represents the general state of the art according to the invention defined in claims 1-15 and 23-24 and the invention defined in claims 16-22.

The inventions are not disclosed by this document.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed system for ventilation a room, the air supply unit and the method for supplying fresh air according to claims 1-15 and 23-24. Therefore, the claimed invention is not obvious to a person skilled in the art.

Neither, the cited prior art gives any indication that would lead a person skilled in the art to the claimed portable air conditioning unit according to claims 16-22. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the inventions defined in claims 1-24 are novel and are considered to involve an inventive step. The inventions are industrially applicable.

CLAIMS

1. A system for ventilating a room having walls (103), a floor (107) and a ceiling (105), and being capable of housing a patient's bed (140), comprising at least one air supply unit (120) and one air exhaust unit (130), **characterised** in that said air supply unit (120) comprises a guiding slot diffuser (122) for guiding an airstream in a certain direction, such that a patient (150), lying down in said bed on his back, receives said airstream, and that said exhaust unit (130) is arranged near the floor (107) and near a head end (141) of the bed (140) such that air is arranged to leave the room after having ventilated the patient (150), said air supply unit (120) also comprises an air outlet (305, 306) devised to supply air at a lower velocity but with a larger volume than the air passing through the diffuser (122), and in that said system also comprises at least one main diffuser (305, 306) comprising perforated sheet (305, 306) and arranged such that a first airflow through the slot diffuser (122) having a first velocity co-ejects a second airflow having a second velocity through the main diffuser (305, 306), said second velocity being lower than said first velocity, such that the combined flow assumes substantially the direction of the first flow and in that the longitudinal direction of at least one slot (301, 302) in the diffuser (120) is lying in a plane which is parallel to a vertical plane parallel with a left or right side of the bed in which the patient is lying.
2. A system as recited in claim 1, **characterised** in that said guiding slot diffuser (122) is provided with a booster fan (124) for driving air through the diffuser (122).
3. An air supply unit (120) for providing conditioned air to a patient lying in a bed, **characterised** by a booster fan (124), arranged to force air through a guiding slot diffuser (122) for guiding an airstream in a certain direction, said diffuser having at least one slot (301, 302), and one area of perforated sheet (305), being arranged at an outlet side of said diffuser, and in that the longitudinal direction of at least one slot (301, 302) in the diffuser (120) is lying in a plane which is parallel to a vertical plane parallel with a left or right side of the bed in which the patient is lying.
4. An air supply unit (120) as recited in claim 3, **characterised** in that said diffuser has two slots (301, 302) and areas of perforated sheet arranged in close proximity of the slots such that an airstream, comprising air passing through both the perforated sheet (305, 306) and the diffuser slots (301, 302), assumes a direction

(D) as controlled by the direction of the diffuser slots.

5. An air supply unit (120) as recited in claim 4, **characterised** in that said diffuser slots (301, 302) form an angle  $\alpha$  to a base plane 160 of said supply unit (120) such that air is guided obliquely down towards the patient (150).
6. An air supply unit (120) as recited in claim 5, **characterised** in that said base plane 160 is arranged horizontal.
7. An air supply unit (120) as recited in claim 6, **characterised** in that said angle  $\alpha$  is between 5 and 15 degrees.
8. An air supply unit (120) as recited in claim 7, **characterised** in that said diffuser slots (301, 302) are adjustable sideways to enable setting the direction D of the airstream.
9. An air supply unit (120) as recited in claim 3, where each slot has a length, a width and a depth (DT), **characterised** in that the depth (DT) is substantially larger than the width.
10. An air supply unit (120) as recited in claim 9, **characterised** in that the depth (DT) is ten to twenty times larger than the width.
11. An air supply unit (120) as recited in claim 10, **characterised** in that the width is approximately 2 mm.
12. An air supply unit (120) as recited in claim 9, having two slots (301, 302), **characterised** in that an angle (GAMMA) is formed between the depth axes (361, 362) of each slot (301, 302).
13. An air supply unit (120) as recited in claim 12, **characterised** in that the angle (GAMMA) between the depth axes (361, 362) is arranged to be adjustable.
14. An air supply unit (120) as recited in claim 12, **characterised** in that the angle (GAMMA) between the depth axes (361, 362) is arranged to be 10 degrees.
15. An air supply unit (120) as recited in claim 4, **characterised** in that it comprises light tubes and corresponding reflectors for providing adequate lighting to a bed

area of the room.

16. A portable air conditioning unit (500), **characterised** in that said conditioning unit (500) comprises at least one main diffuser (520, 521) and at least one slot diffuser (530) arranged such that a first airflow through the slot diffuser (530) having a first velocity co-ejects a second airflow through the at least one main diffuser (520, 521) having a second velocity lower than said first velocity and in that a combined airflow, being the result of said first and second airflow, assumes the direction of the airflow through the slot diffuser (530), and in that said unit (500) comprises a slot diffuser unit having two slots with an acute angle (GAMMA) between said slots' depth axes.
17. A portable air conditioning unit (500) as recited in claim 16, **characterised** in that the longitudinal direction of at least one of said two slots is arranged such that said slot will lie in a plane which is parallel to a vertical plane, parallel to a left or right side of the bed, in which the patient is lying.
18. A portable conditioning unit (500) as recited in claim 17, **characterised** in that said slots are arranged such that air is directed in a main direction that is parallel to a vertical plane parallel to a left or right side of the bed in which the patient is lying.
19. A portable air conditioning unit (500) as recited in claim 16, **characterised** in that said slot diffuser is arranged in a meeting corner (620) of said main diffusers.
20. A portable air conditioning unit (500) as recited in claim 19, **characterised** in that an angle  $\beta$  between two main diffusers is between 80 and 110 degrees.
21. A portable air conditioning unit (500) as recited in claim 20, **characterised** in that each slot is provided with a depth substantially larger than its width.
22. A unit (500) as recited in claim 21, **characterised** in that said width of the slot is approximately 2 mm.
23. A method for supplying fresh air to a patient lying in a bed in a room comprising the following steps:
  - providing a first, relatively fast flow of air, relatively small in volume;
  - providing a second, relatively slow flow of air, relatively large in volume,

and adjacent to the first flow of air such that said first flow of air co-ejects air from the second flow; and

- providing a low speed large volume suction for evacuating the supplied air
- providing the first flow of air by forcing air through at least one elongated slot parallel to a vertical plane parallel to said bed's left or right side; and
- providing the second flow of air by forcing air through a perforated sheet of metal or similar material having a hole content of approximately 30 %.

24. A method as recited in claim 23 further comprising the steps of

- providing the first flow of air by forcing air through two elongated slots having converging axes of depth; and
- providing the second flow of air with an air speed of less than 5 % of the air speed of the first flow and with a volume flow of more than double the volume flow of the first flow.